What is claimed:

1. A process for preparing a chiral reagent or catalyst comprising reacting a metal(m)or metal derivative with one or more chiral amino ligands.

2. The process according to claim 1 wherein the amino ligand is an amino alcohol.

3. The process according to claim 2 wherein the metal or metal derivative is reacted directly with the amino alcohol.

4. The process according to claim 2 wherein the metal or metal derivative is reacted with the amino alcohol concurrent to synthesis of the amino alcohol.

5. The process according to claim 2 wherein the amino alcohol is prepared by a one-step reaction comprising:
   a) an organoboronic acid;
   b) an amine;
   c) a compound selected from the group consisting of an alpha-hydroxy aldehyde, an alpha-keto acid and a carbohydrate.

6. The process according to claim 1 wherein the amino ligand is prepared by the reaction of comprising:
   a) an organoboronic acid;
   b) an amine;
   c) a compound selected from the group consisting of an alpha-hydroxy aldehyde, an alpha-keto acid and a carbohydrate.

7. The process according to claim 6 wherein the amino ligand is further modified prior to reaction with the metal or metal derivative.

8. The process according to claim 1 wherein the chiral amino ligand has an enantiomeric and/or diastereomeric purity of greater than 50%.

9. A process for preparing a combinatorial library of chiral reagents or catalysts comprising reacting a metal(s) or metal derivative with one or more chiral amino ligands.

10. The process according to claim 9 wherein the amino ligand is an amino alcohol.

11. The process according to claim 11 wherein the metal or metal derivative is reacted directly with the amino alcohol.

12. The process according to claim 11 wherein the metal or metal derivative is reacted with the amino alcohol concurrent to synthesis of the amino alcohol.

13. The process according to claim 11 wherein the amino alcohol is prepared by a one-step reaction comprising:
   a) an organoboronic acid;
   b) an amine;
   c) a compound selected from the group consisting of an alpha-hydroxy aldehyde, an alpha-keto acid and a carbohydrate.

14. The process according to claim 9 wherein the amino ligand is prepared by the reaction of comprising:
   a) an organoboronic acid;
   b) an amine;
   c) a compound selected from the group consisting of an alpha-hydroxy aldehyde, an alpha-keto acid and a carbohydrate.

15. The process according to claim 14 wherein the amino ligand is further modified prior to reaction with the metal or metal derivative.

16. The process according to claim 9 wherein the chiral amino ligand has an enantiomeric and/or diastereomeric purity of greater than 50%.

17. A combinatorial library of chiral reagents or catalysts prepared according to claim 9.

18. The process according to claims 5 or 6 wherein at least one of the organoboronic acid, the amine and/or the alpha-hydroxy aldehyde, alpha-keto acid or monosaccharide is attached to a solid support .

19. A process for producing a compound of formula M(L)n comprising reacting a metal or metal derivative with one or more chiral amino ligands, wherein

M is an atom selected from the group consisting of B, Li, Mg, Al, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Mo, Ru, Rh, Pd, Ag, Re, Os, Ir, Pt, La, Ce and Yb;

L is one or more same or different ligands selected from the group consisting of chloro, bromo, iodo, fluoro, oxo, hydroxy, hydroperoxy, alkoxy, aryloxy, acyloxy, acetoacetyl, carboxy, nitro, amino, alkylamino, dialkylamino, azido, carbonyl, alkyl, alenyl, dienyl, aryl, triflate and arylsulfonyl; and

n = 1-6.

20. A compound produced by the process according to claim 19.

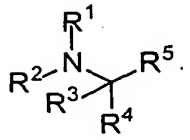
21. A combinatorial library produced by the process according to claim 19.

22. The use of the compound according to claim 20 for the preparation of an industrial chemical.

23. The use of the compound according to claim 20 for the preparation of a pharmaceutical.

24. The use of the compound according to claim 20 for the preparation of an agrochemical.

25. The process according to claim 1 wherein the chiral amino ligand is selected from the group consisting of: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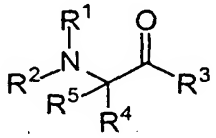
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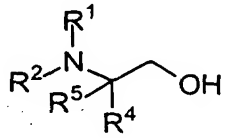
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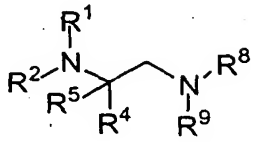
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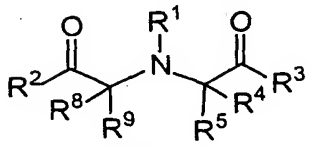
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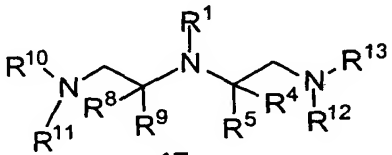
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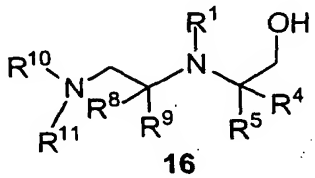
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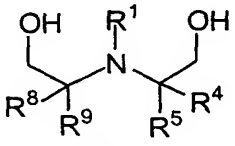
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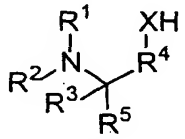
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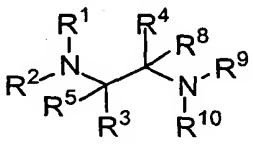
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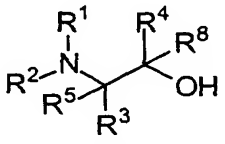
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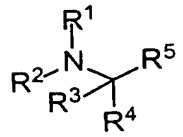
wherein one or more bonds exists among M and a heteroatom of the ligand;

M = B, Li, Mg, Al, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Mo, Ru, Rh, Pd, Ag, Re, Os, Ir, Pt, La, Ce or Yb;

and R^1 - R^{10} = alkyl, alyl, alkenyl, aryl, allenyl, or alkynyl group.

26. The process according to claim 9 wherein the chiral amino ligand is selected from the group consisting of: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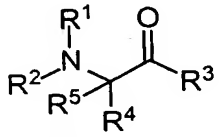
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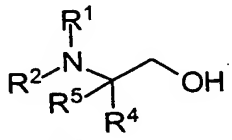
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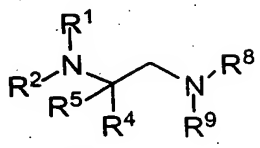
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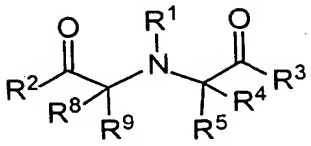
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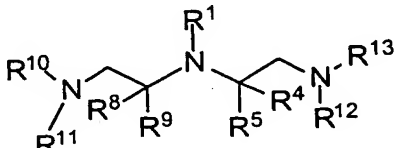
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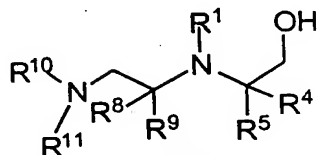
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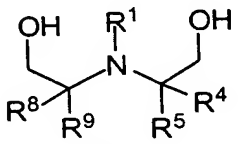
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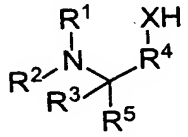
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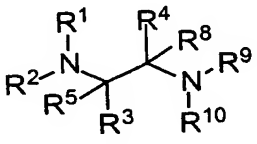
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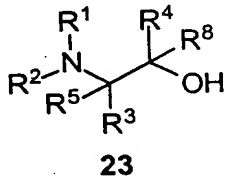
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wherein one or more bonds exists among M and a heteroatom of the ligand;

M = B, Li, Mg, Al, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Mo, Ru, Rh, Pd, Ag, Re, Os, Ir, Pt, La, Ce or Yb;

and R^1 - R^{10} = alkyl, alyl, alkenyl, aryl, allenyl, or alkynyl group.